

40. (New) The assay of claim 1, wherein the sample is blood, serum, lymph, cerebrospinal fluid, breast milk, interstitial or urine.

41. (New) The assay of claim 1, wherein the sample is diaphragm, bone marrow, brain, liver, muscle, adrenal and kidney.

42. (New) The assay of claim 3, wherein measuring the reaction rates comprises utilizing a chromogenic substrate and measuring the absorbance of the reactions.

43. (New) The assay of claim 6, wherein the test sample further comprises an agent which affects the concentration or activity of acetylcholinesterase, butyrylcholinesterase, or both.

44. (New) The assay of claim 43, wherein the agent is removed from the test sample prior to measuring the reaction rates.

45. (New) A method of detecting or confirming whether a subject was exposed to an agent which affects the activity or concentration of a protein, wherein the protein belongs to a plurality of proteins and the plurality of proteins have similar or overlapping properties towards a plurality of substrates, comprising

obtaining the test sample from the subject;

conducting the assay of claim 1; and

comparing the activity or the concentration of the protein in the test sample with a standard.

46. (New) The method of claim 45, wherein the protein is a cholinesterase.

47. (New) A method of determining the identity of an agent affects the activity or concentration of a protein, wherein the protein belongs to a plurality of proteins and the plurality of proteins have similar or overlapping properties towards a plurality of substrates, to which a subject was exposed comprising

obtaining the test sample from the subject;

conducting the assay of claim 1; and

comparing the activity or the concentration of the protein in the test sample with a database of activity and concentration profiles for agents which affect the concentration or activity of the protein or the plurality of proteins, or both.

48. (New) the method of claim 47, wherein the protein is a cholinesterase.

49. (New) A method of determining the efficacy or monitoring the progress of a treatment regime, wherein a subject is administered a compound which affects the activity or concentration of a protein, wherein the protein belongs to a plurality of proteins and the plurality of proteins have similar or overlapping properties towards a plurality of substrates, comprising

obtaining the test sample from the subject;

conducting the assay of claim 1; and

monitoring the activities or the concentrations of the protein as a function of time of the treatment regime.

50. (New) A method of determining whether a subject suffers from a drug sensitivity or a disease which affects the activity or concentration of a protein, wherein the protein belongs to a plurality of proteins and the plurality of proteins have similar or overlapping properties towards a plurality of substrates, comprising

obtaining the test sample from the subject;

conducting the assay of claim 1; and

comparing the activity or the concentration of the protein in the test sample with a database of activity and concentration profiles for the protein which are typical of individuals suffering from given drug sensitivities and individuals suffering from given diseases which affect the activity or concentration of the protein, or both.

51. (New) A method of measuring the concentration of red blood cells in a subject comprising

obtaining the test sample from the subject;

conducting the assay of claim 6;

determining a relationship between standard concentrations of red blood cells and the activities or the concentrations of acetylcholinesterase, butyrylcholinesterase, or both; and

using the relationship to calculate the concentration of red blood cells of the sample.

52. (New) A method of screening for a candidate compound which affects the activity or concentration of a protein, wherein the protein belongs to a plurality of proteins and the plurality of proteins have similar or overlapping properties towards a plurality of substrates, comprising

conducting the assay of claim 1;

contacting the candidate compound with the protein; and

determining whether the concentration or activity of the protein in the test sample changes.